

From: [Mark Purcell](#)
To: [Warren Zehner](#)
Subject: Re: Draft Statement of Work for Extent of Release Evaluation - Sandstone Mine
Date: 11/30/2012 08:36 AM

Excellent comments Warren, thank you.

The K40 insert was from some text that Lisa had started and I just left it in. Not sure where she came up with it.

Also, the proto-ore term was used by our START contractor, Weston, in the Documented Release Sampling report. It was not a term that I was that familiar with.

I will use your suggestions.

Thanks for reviewing.

Mark

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-----Warren Zehner/R6/USEPA/US wrote: -----

To: Mark Purcell/R6/USEPA/US@EPA
From: Warren Zehner/R6/USEPA/US
Date: 11/29/2012 05:22PM
Cc: Jon Rinehart/R6/USEPA/US@EPA
Subject: Re: Draft Statement of Work for Extent of Release Evaluation - Sandstone Mine

Mark:

Very well done, I only had one comment and one question.

Comment: In item 27, I am not sure that proto-ore is the best terminology here, I have seen proto-ore used in some of the old "hard rock" texts associated with low grades of usually base metal deposits associated with gossan related deposits. Since the Ambrosia Lake deposits are roll front, I am not sure that proto-ore fits. Further, most references I have seen for low grade U deposits refer to the material as "sub-economic". This may be picking at nits, use whichever terminology you are comfortable with.

Question: I was curious on why you were interested in the K40 decay chain. K40 is a very common unregulated (to the best of my knowledge) naturally occurring isotope in NM and was the subject of much concern by NMED Rad Group during the Las Conchas fire because it is readily uptake into conifers. To my knowledge NMED screened out all of the K40 values before releasing the radiation data due to it being a prevalent unregulated naturally occurring isotope. Further, most humans have a fairly significant amount of K40 naturally occurring in their bones. While K40 does emit gamma as it



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decays to Ar40 (11%), it is mostly a beta emitter as it decay to Ca40 (89%), I looked it up to be sure. This may be a reach for the ERE, I would suggest sticking with U238, Th232, Ra226 and maybe U235.

Warren

 Mark Purcell---11/26/2012 02:51:04 PM---Sandstone Uranium Mine, McKinley County, NM Privileged and Confidential: Do Not Release

From: Mark Purcell/R6/USEPA/US

To: Warren Zehner/R6/USEPA/US@EPA, Jon Rinehart/R6/USEPA/US@EPA, "Dixon Earle NMENV" <Earle.Dixon@state.nm.us>, david.mayerson@state.nm.us

Date: 11/26/2012 02:51 PM

Subject: Draft Statement of Work for Extent of Release Evaluation - Sandstone Mine

Sandstone Uranium Mine, McKinley County, NM
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Please review the draft statement of work for the responsible party to perform an Extent of Release Evaluation at the Sandstone/John Bully mine site.

Thanks,

Mark

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